

(19) World Intellectual Property Organization International Bureau

(43) International Publication Date
14 July 2005 (14.07.2005)

PCT

(10) International Publication Number
WO 2005/064501 A1(51) International Patent Classification⁷: G06F 17/50

(21) International Application Number:

PCT/RU2003/000595

(22) International Filing Date:

29 December 2003 (29.12.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(71) Applicant (for all designated States except US): MOTOROLA, INC. [US/US]; 7700 W.Parmer Lane, MD:PL02, Austin, TX 78729 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): MAZIASZ, Robert, L. [US/US]; 11609 Hobbiton Trail, Austin, TX 78739 (US). MARCHENKO, Alexander Mikhailovich [RU/RU]; Bratslavskaya ul., 19/2, 192, 109451 Moscow (RU). SOTNIKOV, Mikhail Anatolievich [RU/RU]; Zelenograd, 219-28, 124305 Moscow (RU). TOPOUZOV, Igor Georgievich [RU/RU]; Zelenograd, 162-157, 124305 Moscow (RU).

(74) Agents: EGOROVA, Galina et al.; LAW FIRM GORODISSKY & PARTNERS LTD., B. Spasskaya ul., 25, str. 3, Moscow, 129010 (RU).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WO 2005/064501 A1

(54) Title: CIRCUIT LAYOUT COMPACTION USING RESHAPING

(57) Abstract: A critical path minimization technique uses a novel reshaping layout reorganization mechanism. Circuit objects and/or object fragments which belong to a critical path in a reference direction are reshaped using resources of an orthogonal direction. A fragment may decrease its size in the layout in the reference direction and increase its size in the orthogonal direction. Types of reshaping include via, diode or tie reshaping, transistor chain reshaping by transistor finger resizing, and transistor chain reshaping by transistor finger removing. The removal technique can include removal of one (or 2N+1) transistor finger(s) from an edge (e.g., beginning or end) of a transistor chain, removal of two (or 2N) adjacent transistor fingers from any position of a transistor chain, removal of one (or 2N+1) transistor finger(s) from inside a transistor chain with diffusion gap insertion, and removal of a group or series of transistor fingers. Such reshaping can allow a more effective compaction of a circuit layout